

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

**Claims 1-7 (Cancelled).**

**8. (Currently Amended)** An isolated variant of an

~~*Erysipelothrix rhusiopathiae*~~ *Erysipelothrix rhusiopathiae*  
surface protective antigen SpaA protein or of a shortened form thereof (known as  $\Delta$ SpaA protein),

wherein the SpaA protein has the amino acid sequence  
~~of SEQ ID NO: 2~~ encoded by nucleotide sequence of SEQ ID NO:7,  
and the  $\Delta$ SpaA protein is a shortened form of the SpaA protein  
in which ~~a about one third of the C-terminal~~ 207 amino acid  
residues at the C-terminus of the SpaA protein ~~is~~ are deleted,

wherein said variant is immunogenic, and expressed  
in ~~*E. coli*~~ *E. coli* as inclusion bodies, and is selected from  
the group consisting of:

(1) the SpaA protein of the SE9 strain of  
*Erysipelothrix rhusiopathiae* comprising the amino acid  
substitution at position 531 (arginine to glycine);

(2) the SpaA protein of the SE9 strain of  
*Erysipelothrix rhusiopathiae* comprising the amino acid  
substitutions at position 214 (histidine to glutamine) and at  
position 253 (methionine to threonine);

(3) the  $\Delta$ SpaA protein of the SE9 strain of  
*Erysipelothrix rhusiopathiae* comprising the amino acid  
substitutions at position 214 (histidine to glutamine) and at  
position 253 (methionine to threonine);

(4) the  $\Delta$ SpaA protein of the SE9 strain of  
*Erysipelothrix rhusiopathiae* comprising the amino acid  
substitutions at position 69 (glutamic acid to glycine), at  
position 154 (glutamic acid to glycine), and at position 203  
(isoleucine to threonine); and

(5) the  $\Delta$ SpaA protein of the SE9 strain of  
*Erysipelothrix rhusiopathiae* comprising the amino acid  
substitution at position 278 (aspartic acid to glycine).

**9-16. (Cancelled)**

**17. (Currently Amended)** A composition comprising as  
an active ingredient an isolated variant of an ~~*Erysipelothrix*~~  
~~*rhusiopathiae*~~ *Erysipelothrix rhusiopathiae* surface protective  
antigen SpaA protein or of a shortened form thereof (known as  
 $\Delta$ SpaA protein),

wherein the SpaA protein has the amino acid sequence  
~~of SEQ ID NO: 2~~ encoded by the nucleotide sequence of SEQ ID  
NO:7, and the  $\Delta$ SpaA protein is a shortened form of the SpaA  
protein, in which ~~a about one third of the C-terminal 207~~  
amino acid residues at the C-terminus of the SpaA protein ~~is~~  
are deleted,

wherein said variant is immunogenic, and expressed in ~~E. coli~~ E. coli as inclusion bodies, and is selected from the group consisting of:

(1) the SpaA protein of the SE9 strain of *Erysipelothrix rhusiopathiae* comprising the amino acid substitution at position 531 (arginine to glycine);

(2) the SpaA protein of the SE9 strain of *Erysipelothrix rhusiopathiae* comprising the amino acid substitutions at position 214 (histidine to glutamine) and at position 253 (methionine to threonine);

(3) the  $\Delta$ SpaA protein of the SE9 strain of *Erysipelothrix rhusiopathiae* comprising the amino acid substitutions at position 214 (histidine to glutamine) and at position 253 (methionine to threonine);

(4) the  $\Delta$ SpaA protein of the SE9 strain of *Erysipelothrix rhusiopathiae* comprising the amino acid substitutions at position 69 (glutamic acid to glycine), at position 154 (glutamic acid to glycine), and at position 203 (isoleucine to threonine); and

(5) the  $\Delta$ SpaA protein of the SE9 strain of *Erysipelothrix rhusiopathiae* comprising the amino acid substitution at position 278 (aspartic acid to glycine).

**18-25. (Cancelled)**

**26. (Withdrawn-Currently amended)** A nucleic acid  
encoding the variant of claim 8~~gene coding for a variant of~~  
~~*Erysipelothrix rhusiopathiae* surface protective antigen SpaA~~  
~~or of a shortened form thereof~~  $\Delta$ SpaA protein in which a  
~~portion of SpaA protein is deleted, said variant being~~  
~~immunogenic and expressed in *E. coli* as inclusion bodies.~~

**Claims 27-36 (Cancelled).**

**37. (Withdrawn-Currently amended)** A method for  
immunizing against infection with *Erysipelothrix rhusiopathiae*,  
comprising administering the variant of claim 8 to an animal  
in need of immunization~~Use of a variant of *Erysipelothrix*~~  
~~*rhusiopathiae* surface protective antigen SpaA or of a~~  
~~shortened form thereof~~  $\Delta$ SpaA protein in which a portion of  
SpaA protein is deleted, which is immunogenic and expressed in  
*E. coli* as inclusion bodies, for the preparation of a vaccine  
to *Erysipelothrix rhusiopathiae* infection.

**Claims 38-45 (Cancelled).**